

**ANNEX  
BETWEEN  
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AMES RESEARCH CENTER  
AND  
CANOPY AEROSPACE INC.  
UNDER SPACE ACT UMBRELLA AGREEMENT NO. 36225 / SAA2-403683  
(ANNEX NUMBER ONE)**

**ARTICLE 1. PURPOSE**

This Annex One to the Reimbursable Space Act Umbrella Agreement SAA2-403683 (the “Umbrella Agreement”) between Canopy Aerospace Inc. (“Partner” or “Canopy”) and NASA Ames Research Center (“NASA” or “NASA ARC”) shall be for the purpose of thermal protection system (TPS) technology transfer.

Under this annex, Canopy seeks the unique expertise of the Entry Systems and Technology Division at NASA ARC to deliver a range of mission-tested thermal protection systems for a variety of use cases across different industries.

NASA ARC will transfer Ames-invented TPS technologies to Canopy. The tech transfer is inclusive of material fabrication, processing procedures, and best practices and is inclusive of both reusable and ablative TPS. These activities support U.S. commercial access to space activities, which is a core Mission for the Agency. Each capitalized term used in this Annex One, but not defined herein, shall have the meaning ascribed to it in the Umbrella Agreement.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

**ARTICLE 2. RESPONSIBILITIES**

A. NASA will be responsible for providing technology transfer documentation, best practices, and demonstrations in the form of meeting support, observational training at ARC and Canopy facilities, material and process specifications, processing run sheets, and work instructions in the following areas/tasks. Each task can be individually and optionally funded.

1. Alumina Enhanced Thermal Barrier (AETB) manufacture
2. AETB machining
3. Reaction Cured Glass (RCG) slurry production
4. Toughened Unpiece Fibrous Insulation (TUFI) slurry production
5. Coated tile manufacture (RCG)
6. Coated tile manufacture (TUFI & RCG overlay)

NASA will be responsible for supporting Canopy in material process updates, including:

7. AETB process refinement, Phase 1
8. AETB process refinement, Phase 2
9. Casting tower redesign, Phase 1
10. Casting tower redesign, Phase 2

NASA will be responsible for providing additional support as described below:

11. TPS subject matter expert support, Phase 1
12. TPS subject matter expert support, Phase 2
13. TPS subject matter expert support, Phase 3
14. Additional process training at Ames
15. Additional process training at Canopy
16. Support RCG process update research and development

B. Partner will use reasonable efforts to:

1. Establish regular meetings for information exchange
2. Provide details regarding targeted TPS material size requirements
3. Provide details regarding laboratory space and infrastructure for Canopy facility
4. Regarding ARC facility access, comply with the requirements of Article 17 of the Umbrella Agreement, which include, but are not limited to, NASA badging, security, safety regulations, policies, and guidelines for observing the TPS process at ARC

### ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

Deliverables listed in this Article match the numbering system from the NASA Responsibilities Article and are also referred to as subtasks. Note that the "Authority to Proceed" (ATP) requires appropriate signatures on this agreement from both Parties and a transfer of funds from the Partner to NASA ARC on a per subtask basis. Further note that the Partner can selectively fund any or all of the deliverables (subtasks) listed in this Article. Should Partner provide ATP and funding out of sequential order, NASA reserves the right to revise the estimated due date. The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

| <u># NASA Deliverables or Tasks</u> | <u>Completion Date</u> |
|-------------------------------------|------------------------|
| 1. AETB manufacture                 | ATP + 10 months        |
| 2. AETB machining                   | ATP + 4 months         |
| 3. RCG slurry production            | ATP + 6 months         |
| 4. TUF1 slurry production           | ATP + 6 months         |
| 5. Coated tile manufacture (RCG)    | ATP + 4 months         |

|  |                                    |
|--|------------------------------------|
| 6. Coated tile manufacture (TUFU & RCG)    | ATP + 4 months                     |
| 7. AETB process refinement, Phase 1        | ATP + 6 months                     |
| 8. AETB process refinement, Phase 2        | ATP + 6 months                     |
| 9. Casting tower redesign, Phase 1         | ATP + 5 months                     |
| 10. Casting tower redesign, Phase 2        | ATP + Task 9 Completion + 5 months |
| 11. Subject matter expert support, Phase 1 | ATP + 3 months                     |
| 12. Subject matter expert support, Phase 2 | ATP + 4 months                     |
| 13. Subject matter expert support, Phase 3 | ATP + 5 months                     |
| 14. Additional process training at Canopy  | ATP + 1 month                      |
| 15. Additional process training at Ames    | ATP + 1 month                      |
| 16. Support RCG process update development | ATP + 5 months                     |

#### ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA to carry out its responsibilities on a per subtask basis under this Agreement. In no event will NASA transfer any U.S. Government funds to Partner under this Agreement. Payment must be made by Partner in advance of initiation of NASA's efforts for each selected subtask on behalf of the Partner.

Partner can selectively fund any or all of the subtasks listed in this Article, which correspond to the NASA Deliverables/Subtasks listed in the previous Article. In advance of subtask performance by NASA, Partner shall provide NASA with written notice identifying each subtask that it chooses to fund. Deliverables/ Tasks estimated costs are:

#### **Deliverables/Tasks**

| <u>#</u> <u>Description</u>                    | <u>Cost</u> |
|--|-------------|
| 1. AETB manufacture                            | \$150k      |
| 2. AETB machining                              | \$80k       |
| 3. RGC slurry production                       | \$50k       |
| 4. TUFU slurry production                      | \$30k       |
| 5. Coated tile manufacture (RCG)               | \$80k       |
| 6. Coated tile manufacture (TUFU & RCG)        | \$60k       |
| 7. AETB process refinement, Phase 1            | \$70k       |
| 8. AETB process refinement, Phase 2            | \$70k       |
| 9. Casting tower redesign, Phase 1             | \$40k       |
| 10. Casting tower redesign, Phase 2            | \$40k       |
| 11. TPS subject matter expert support, Phase 1 | \$40k       |
| 12. TPS subject matter expert support, Phase 2 | \$50k       |
| 13. TPS subject matter expert support, Phase 3 | \$60k       |
| 14. Additional process training at ARC         | \$40k       |
| 15. Additional process training at Canopy      | \$20k       |
| 16. Support RCG process update development     | \$50k       |

Each payment shall be marked with Ames, Annex One, SAA2-403683-1.

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within six months after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

#### ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of two years.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:

The Disclosing Party's Background Data, if any, will be identified in a separate document.

2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate document.

3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate document.

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None.

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or three years from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Management Points of Contact

NASA Ames Research Center  
Matt Holtrust  
Agreement Manager  
Mail Stop: 223-3, Room 100  
Moffett Field, CA 94035  
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matt@canopyaerospace.com

Technical Points of Contact

NASA Ames Research Center  
Jay Feldman  
Research Materials Engineer  
Mail Stop: 223-3  
Moffett Field, CA 94035  
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203 Yoakum Pkwy APT  
705 Alexandria, VA 22304  
Phone: (301) 602-045  
john@canopyaerospace.com

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION  
AMES RESEARCH CENTER**

**CANOPY AEROSPACE INC.**

BY: \_\_\_\_\_  
Dr. Rupak Biswas  
Director of Exploration Technology

BY:  \_\_\_\_\_  
Matt Shieh  
CEO

DATE: \_\_\_\_\_

DATE: 4/3/2022 \_\_\_\_\_